1.1 Radio Astronomy

1.1.1 Maintenance and Calibration

- Found Q-band 15K stage temperature out of limits (26.3K). CCR department performed a cool down process and drive unit was replaced by a spare. Faulty unit will be sent to JPL to repair. Performance of system checked afterwards.
- Local RA procedures for Host Country spectroscopy observations have been updated with recent changes.
- Fixed several bugs at spectroscopy software (exp_control) related with frequency switching observing mode.
- RAC60A computer is still being repaired at CMF department. The power supply has not yet arrived.

1.1.2 R&D, Outreach activities and Training courses

Ioana Sotuela has recently joined the RA department. She has a background in Astrophysics and has been working in the MDSCC Antenna Calibration group for almost a year. Ioana will be sharing Antenna Calibration and Radio Astronomy duties from now on and is currently being trained on RA matters. Esther Moll will be working in the Maximo group.

During the second week of April Shinji Horiuchi, RA Engineer from Canberra station visited MDSCC. The purpose of his visit was to perform a 24h observation of Jupiter using several DSN antennae (DSS-43, PARTNeR and GAVRT antennae) and interact with PARTNeR staff to plan the future Jupiter monitoring. The observation was performed by 15-16 year old students in remote from their school. Spanish media followed the event. The day after the observation Horiuchi imparted a conference at the Astrobiology Center (NASA/INTA) to the same students about the scientific project they have just been involved.

Additionally Shinji Horiuchi received a training course imparted by RA department on spectroscopy software migration to Linux platform and on Mark5 recorder high speed recording issues.

CGM participated in the teleconference organized by VLBI groups at JPL and ESOC for the X/Ka Catalog extension to the Southern Hemisphere latitudes. It is being planned a first observing test between GDSCC, MDSCC and Cebreros antenna.

INSA R&D department has joined the Exomars proposal for the Trace Gas Orbiter instrument lead by Prof. Nilton O. Renno (University of Michigan). Luis Vazquez, Co-Pi of the proposal, visited MDSCC on April 27th to plan future collaborations.

1.1.3 Observations

1.1.3.1 Host Country Spectroscopy

During this month K-band spectroscopy observations were performed with DSS-63 antenna, SPB500 spectrometer and the MarkIV data acquisition terminal as baseband converter. K-band spectroscopy software package recently migrated to RAC60B was used. No Q-band spectroscopy observations were performed with DSS-54 antenna.

DOY	minutes scheduled	minutes used	Percent good data	Activity	comments
099	360	240	0	"GBRA H/C D63-S10/S11"	Conf problems
105	265	200	100	"GBRA H/C D63 Jupiter"	OK
114	225	120	50	"GBRA H/C D63-S10/S11"	Freq Sw testing
115	240	120	50	"GBRA H/C D63-S10/S11"	Freq Sw testing
118	210	210	10	"GBRA H/C D63-S10/S11"	Calibrator OK

1.1.3.2 Interferometry

MDSCC participated in 3 Very Long Baseline Interferometric (VLBI) observations (2010 min in total):

- RFC Clock Synchronization on DSS-65 (2 observation; 480 min): 100% data collected, performance of system nominal. Successful supports using Non-TDN connection blocks.
- RFC Catalog X/Ka on DSS-55 (1 observation; 1530 min): 100% data collected, performance of system nominal. Successful supports using Non-TDN connection blocks.